What is claimed is:

1. A retarded electric motor having an operating mode and a braking mode, said motor comprising:

at least one field winding;

one commutating armature being connected in series with said at least one field winding;

a first valve lying in series with said field winding and said armature connecting said field winding and said armature to a supply voltage when being in said operating mode;

a second valve for bypassing said armature when being in braking mode;

a third valve configured as a free wheeling valve and being connected at least across said field winding and

a forth valve for connecting said field winding to said supply voltage for external excitation when being in said braking mode;

a control for controlling said valves to connect said armature and said field winding in series with said supply voltage when being in said operating mode, to connect said field winding to said supply voltage for externally exciting said field winding by means of said supply voltage while bypassing said armature via said second valve and limiting the voltage across said field winding by means of said third valve when being in said braking mode.

2. The retarded electric motor of claim 1 wherein said first valve is configured as a triac controlled by a phase current phase control.

3. The retarded electric motor of claim 1 wherein said second valve is configured as a thyristor.

4. The retarded electric motor of claim 1 wherein said third valve is configured as a thyristor.

5. The retarded electric motor of claim 1 wherein said first valve is configured as transistor.

6. The retarded electric motor of claim 5 wherein said first valve is configured as a field effect transistor controlled by a pulse duration modulation.

7. The retarded electric motor of claim 1 wherein at least one of said valves comprises an optical coupling device.

8. The retarded electric motor of claim 1 wherein said control is configured as a microcontroller.

9. A retarded electric motor having an operating mode and a braking mode, said motor comprising:

at least one field winding;

one commutating armature being connected in series with said at least one field winding;

a first valve lying in series with said field winding and said armature connecting said field winding and said armature to a supply voltage when being in said operating mode;

a second valve for bypassing said armature when being in braking mode;

a third valve configured as a free wheeling valve and being connected at least across said field winding and

a control for controlling said valves to connect said armature and said field winding in series with said supply voltage when being in said operating mode, to connect said field winding to said supply voltage for externally exciting said field winding by means of said supply voltage while bypassing said armature via said second valve and limiting the voltage across said field winding by means of said third valve when being in said braking mode.

10. The retarded electric motor of claim 9 wherein said first valve is configured as a triac controlled by a phase current phase control.

11. The retarded electric motor of claim 9 wherein said second valve is configured as a thyristor.

12. The retarded electric motor of claim 9 wherein said third valve is configured as a thyristor.

13. The retarded electric motor of claim 9 wherein said first valve is configured as transistor.

14. The retarded electric motor of claim 13 wherein said first valve is configured as a field effect transistor controlled by a pulse duration modulation.

15. The retarded electric motor of claim 9 wherein said third valve is connected in series with a load resistance to said supply voltage.

16. The retarded electric motor of claim 9 wherein said third valve is connected in series with said field winding, a load resistance and at least one excitation winding to said supply voltage.

17. The retarded electric motor of claim 9 wherein said second valve is connected in series with an excitation winding in parallel to said armature.

18. The retarded electric motor of claim 14 wherein said supply voltage is configured as an AC voltage supply, and said field effect transistor is connected via a rectifier to said supply voltage and said field winding.

19. The retarded electric motor of claim 14 wherein said supply voltage is configured as a DC voltage supply, and said field effect transistor is connected in series with said field winding and said supply voltage supply.

20. The retarded electric motor of claim 19 wherein said second valve is configured as a thyristor and said third valve is configured as a diode.

21. The retarded electric motor of claim 9 wherein at least one of said valves comprises an optical coupling device.

22. The retarded electric motor of claim 21 wherein at least one of said valves comprises an optical an optical diode.

23. The retarded electric motor of claim 21 wherein at least one of said valves comprises an optical triac.

24. The retarded electric motor of claim 10 wherein said first valve is configured as a triac driven by a phase current control is configured for controlling the motor during operating mode and during braking mode.

25. The retarded electric motor of claim 24 wherein said supply voltage is an AC supply voltage and wherein said phase current control drives only one half wave when being in said braking mode.

26. A retarded electric motor having an operating mode and a braking mode, said motor comprising:

at least one field winding;

one commutating armature being connected in series with said at least one field winding;

a first valve lying in series with said field winding and said armature connecting said field winding and said armature to a supply voltage when being in said operating mode;

a second valve for bypassing said armature when being in braking mode;

a third valve for connecting said field winding to said supply voltage for external excitation when being in said braking mode;

a control for controlling said valves to connect said armature and said field winding in series with said supply voltage when being in said operating mode, to connect said field winding to said supply voltage for externally exciting said field winding by means of said supply voltage while bypassing said armature via said second valve and limiting the voltage across said field winding by means of said third valve when being in said braking mode;

wherein at least one of said valves comprises an optical coupling device.

27. A retarded electric motor having an operating mode and a braking mode, said motor comprising:

at least one field winding;

one commutating armature being connected in series with said at least one field winding;

a first valve lying in series with said field winding and said armature connecting said field winding and said armature to a supply voltage when being in said operating mode;

a second valve for bypassing said armature when being in braking mode; and

a control for controlling said valves to connect said armature and said field winding in series with said supply voltage when being in said operating mode, to connect said field winding to said supply voltage for externally exciting said field winding by means of said supply voltage while bypassing

said armature via said second valve and limiting the voltage across said field winding by means of said third valve when being in said braking mode;

wherein at least one of said valves comprises an optical coupling device.

28. A braking module in an electric series motor having a first valve in series with an armature and at least one field winding, said braking module comprising:

a second valve for bypassing the armature;

a third valve for limiting excess voltages within said motor;

a control for controlling said valves when switching between an operating mode and a braking mode.

29. A retarded electric motor configured as an asynchronous motor comprising:

at least two field windings;

a squirrel cage rotor;

a switch for switching between operating mode and braking mode being configured to disconnect at least one field winding from the supply voltage when being in said braking mode;

a first valve connected across at least one field winding and being configured as a free wheeling valve for limiting the voltage across said field winding when being in said braking mode; and

a second valve for connecting at least one field winding to the supply voltage for external excitation when being in said braking mode;

wherein said first and second valves are open when being in said operating mode and being closed when being in said braking mode.

30. The retarded electric motor of claim 28 comprising three field windings in star connection.

31. The retarded electric motor of claim 29, wherein said switch is configured for disconnecting at least two field winding from the supply voltage when being in said braking mode.

32. The retarded electric motor of claim 30, wherein said first valve is connected across at least two field windings for limiting the voltage across said two field windings when being in said braking mode.

33. The electric motor of claim 28, wherein at least one of said valves is configured as a triac being connected in series with a diode.

34. The electric motor of claim 32, wherein said second valve is configured as a triac being connected in series with a diode and being controlled by a phase current control, said phase current control operating at a current flow angle of 180° during braking mode, and operating at a current flow angle of #180° for regulating the braking during braking mode.